



RECEIVED  
NOV 21 2003  
TC 1700

SPECIFICATION AMENDMENTS  
BACKGROUND OF THE INVENTION

0001 Sealed Tight is an agricultural waste treatment system that uses psychrophilic anaerobic digestion to dispose of animal waste solids and ~~aquatic plants to purify filtered effluent.~~  
an overflow canal for irrigation.

0004 ~~Aquatic plant filtering of degraded water has been proven to be effective as conventional sewage treatment systems, as shown in the work of wolverton in the 1980's. The problem with this type of system is that it is limited by climate, and is primarily used for aqua culture of fish. Existing systems are designed to use plants as the primary filter of degraded water.~~

BRIEF SUMMARY OF THE INVENTION

~~0003~~ Sealed Tight is a complete waste treatment system. ~~Aquatic plants are used to treat filtered effluent from the digester. The plants are.~~ Effluent is contained in a lined, covered canal to decrease ground water contamination and danger of flooding..

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Figure 1A Cross-section View of the Sealed Tight system

- 1 Endview of overflow canal(current)
- 2 Greenhouse over canal(current)
- 3 Micro-filter to filter effluent(current)
- 4 Valves to control the flow of effluent(current)
- 5 Pipe to pump gas to storage(current)
- 6 Concrete retaining wall around pit(current)
- 7 Emergency Photovoltaic Pump(current)

## SPECIFICATION AMMENDMENTS

- 8 Pressure switch to control pressure indigester(current)
- 9 Diaphragm Membrane(current)
- 10 Drain for finished slurry(current)
- 11 Inlet for waste(current)
- 12 Augers)(current)
- 13 Valve to seal system in flood stage(current)
- Figure 2A Cross-section of overflow canal
- Figure 2B End View of Overflow Canal
- 14 Doors to Greenhouse(current)
- 15 Spillway for canal(current)
- 16 Overhead Harvester (withdrawn)
- 17 Effluent INlet(current)

## DETAILED DESCRIPTION OF THE INVENTION

0001 Sealed Tight is a continuous flow, psychrophilic anaerobic digester, micro-filtration, integrated aquaculture waste treatment system that eliminates the danger of flooding damage. Sealed Tight converts existing manure pits into anaerobic digesters and ~~uses aquatic plants in filters~~ effluent into an overflow canal for irrigation to convert nutrient-rich effluent into feed for livestock.

0003 Effluent then flows through a micro-filter, separating out solids. Once through the micro-filter, effluent flows into one end of the adjacent canal, which is lined to prevent ground

## SPECIFICATION AMMENDMENTS

water contamination. Thenutrient-rich water is stored for irrigation  
~~filtered by the growth of aquatic plants. The purified water~~  
~~flows out the other end of the canal~~

0004 ~~The overflow canal is four feet deep, the average~~  
length of the feather-like roots of the water hyacinth.  
The overflow canal has a surface area of at least one eighth  
that of the digester. ~~Water hyacinth has been shown to~~  
~~effectively treat water prior to release in the environment.~~  
The canal is covered by a hoop-type greenhouse to divert  
rainwater into adjacent ditches, ~~and to protect the tropical plants~~  
~~during the cold season. The greenhouse is also enelosed to~~  
~~prevent the spread of water hyacinth into the ecosystem. An~~  
~~overhead conveyor belt is suspende from the ceiling, it is used~~  
~~to push plants out the end of the canal to be harvested.~~

0005 Sealed Tight will not interfere with normal operations of the  
farm. The farmer will continue to dispose of manure using existing  
procrdures and equipment. The farmer must only close the over-  
flow valve before sending manure into pitand run augers for  
atleast thirty minutes each cleaning. The farmer must allow  
atleast eight hours for settling before opening the overflow  
valve. ~~The farmer will harvest plants periodically, depending~~  
~~on growth. To harvest, the farmer will open the doors to the~~  
~~greenhouse. The farmer will then turn on the conveyor, which~~

# SPECIFICATION AMMENDMENTS

~~will push plants over the spill way. The plants will then be  
used for feed.~~